

CLAIMS:

1. An exhaust system for a diesel engine, which system comprising a first NO<sub>x</sub>-trap comprising at least one first NO<sub>x</sub> absorbent and platinum, characterised in that at least one second NO<sub>x</sub> absorbent is disposed upstream of the first NO<sub>x</sub>-trap, which at least one second NO<sub>x</sub> absorbent is not associated with platinum.
2. An exhaust system according to claim 1, wherein each first and second NO<sub>x</sub>-absorbent is selected from the group consisting of alkaline earth metal compounds, alkali metal compounds and rare earth metal compounds.
3. An exhaust system according to claim 2, wherein the or each alkaline earth metal is barium, magnesium, strontium or calcium.
4. An exhaust system according to claim 2, wherein the or each alkali metal is potassium or caesium.
5. An exhaust system according to claim 2, wherein the or each rare earth metal is cerium, yttrium, lanthanum or praseodymium.
6. An exhaust system according to claim 2, 3, 4 or 5, wherein the or each alkaline earth metal compound, the or each alkali metal compound or the or each rare earth metal compound is supported on a support material.
7. An exhaust system according to claim 6, wherein the or each support is alumina, silica, titania, zirconia, ceria or a mixture or composite oxide of any two or more thereof.
8. An exhaust system according to claim 6, wherein the NO<sub>x</sub> absorbent comprises the support.
9. An exhaust system according to claim 1, wherein the second NO<sub>x</sub> absorbent is alumina *per se*.

10. An exhaust system according to any preceding claim, further comprising a catalyst for oxidising NO to NO<sub>2</sub> disposed between the at least one second NO<sub>x</sub> absorbent and the first NO<sub>x</sub>-trap.
- 5 11. An exhaust system according to claim 10, wherein the NO oxidation catalyst is platinum on an alumina support.
12. An exhaust system according to claim 10 or 11, comprising a particulate filter disposed between the oxidation catalyst and the first NO<sub>x</sub>-trap.
- 10 13. An exhaust system according to any of claims 1 to 11, wherein the first NO<sub>x</sub>-trap comprises a particulate filter.
14. An exhaust system according to any preceding claim, further comprising a catalyst comprising a catalyst component for oxidising hydrocarbon and carbon
- 15 monoxide to water and carbon dioxide and an oxygen storage component, which catalyst is disposed downstream of the first NO<sub>x</sub>-trap.
15. An exhaust system according to claim 14, wherein the oxidation catalyst
- 20 comprises platinum or palladium supported on a bulk ceria-zirconia mixed oxide oxygen storage component.
16. A diesel engine comprising an exhaust system according to any preceding claim.
- 25 17. A light-duty diesel engine according to claim 16.
18. An engine according to claim 16 or 17, comprising an engine control unit, when in use, intermittently to adjust the exhaust gas composition to the rich side for regenerating the at least one first NO<sub>x</sub> absorbent.
- 30 19. A flow-through substrate comprising a NO<sub>x</sub>-trap comprising a first zone coated with a composition comprising at least one first NO<sub>x</sub> absorbent and platinum and a

second zone coated with a composition comprising at least one second NO<sub>x</sub>-absorbent, which at least one second NO<sub>x</sub> absorbent is not associated with platinum.

20. A method of treating NO<sub>x</sub> in the exhaust gas of a diesel engine, which method  
5 comprising (i) absorbing NO<sub>2</sub> from lean exhaust gas in at least one second NO<sub>x</sub> absorbent when a downstream first NO<sub>x</sub>-trap comprising at least one first NO<sub>x</sub> absorbent and platinum is inactive for reducing NO<sub>x</sub> using a suitable reductant; (ii) thermally desorbing stored NO<sub>x</sub>; and (iii) reducing thermally desorbed NO<sub>x</sub> on the first NO<sub>x</sub>-trap using a suitable reductant.

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21. A method according to claim 20, comprising the step between steps (i) and (ii) of adsorbing thermally desorbed NO<sub>x</sub> on the at least one first NO<sub>x</sub> absorbent.